

WE CLAIM:

1. A structure comprising:

5 a first electrode;

a second electrode;

a shielding electrode;

wherein at least one plate of said shielding electrode separates each plate of said first electrode from any plate of said second electrode;

10 at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode; and

wherein said first electrode includes a first electrode plate having a first electrode plate major surface and at least one first electrode plate energy entry region, said second electrode includes a second electrode plate having at least one second electrode plate energy entry region;

15 an energy pathway line segment is defined by a line segment terminating in regions defined by a projection onto a plane parallel to a plane defined by said first electrode plate major surface of (1) said at least one first electrode plate energy entry region and (2) said at least one second electrode plate energy entry region;

20 said energy pathway line segment having an energy pathway line segment length;

a maximal energy perpendicular line segment corresponding to said energy pathway line segment, said maximal energy perpendicular line segment having a maximal energy perpendicular line segment length;

wherein said maximal energy perpendicular line segment length is greater than  
25 said energy pathway line segment length.

2. The structure of claim 1 providing an insertion loss at ten megahertz across said first electrode and said second electrode of at least 80 dB.

30 3. The structure of claim 1 wherein length of each energy perpendicular line segment is greater than said energy pathway line segment length.

4. The structure of claim 1 wherein said first electrode plate has only one first electrode plate energy entry region.

5. The structure of claim 1 wherein said first electrode plate has a plurality of first electrode plate energy entry regions.
6. The structure of claim 1 wherein said at least one first electrode plate comprises a  
5 first electrode plate necked region that defines an energy entry region of said first electrode plate.
7. The structure of claim 1 wherein said at least one first electrode plate intersects at least one wire line at an energy entry region intersection, said at least one wire line  
10 extends substantially perpendicular to said first electrode plate major surface, and said energy entry region intersection defines an energy entry region of said first electrode plate.
8. The structure of claim 7 wherein said first electrode comprises a plurality of first electrode plates and said at least one wire line intersects each one of said plurality of first electrode plates.  
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9. The structure of claim 7 wherein said energy entry region intersection does not contact a peripheral edge of said first electrode plate.  
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10. The structure of claim 1 wherein said first electrode comprises a first electrode plate having a thickness less than 50 microns.
11. The structure of claim 1 wherein said first electrode comprises a first electrode plate having a thickness greater than a few tens of angstroms.  
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12. The structure of claim 1 wherein said at least one first electrode plate comprises a first electrode plate necked region that defines at least part of an energy entry region of said first electrode.  
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13. The structure of claim 1 wherein said at least one first electrode plate is generally rectangular and has a first electrode plate longer side and two first electrode plate shorter sides adjacent said first electrode plate longer side.
- 35 14. The structure of claim 13 wherein said at least one first electrode plate has a first

electrode plate region forming at least part of an energy entry region of said first electrode, and said first electrode plate region is closer to said first electrode plate longer side than to either of said two first electrode plate shorter sides.

5       15. The structure of claim 13 wherein said first electrode plate longer side has a first electrode plate longer side length, and said at least one first electrode plate includes a first electrode plate region forming at least part of an energy entry region of said first electrode, and said first electrode plate region that extends along said first electrode plate longer side for a length of at least one twentieth of said first electrode plate longer side  
10      length.

15       16. The structure of claim 13 wherein said first electrode plate longer side has a first electrode plate longer side length, said at least one first electrode plate includes a first electrode plate region forming at least part of an energy entry region of said first electrode, and said first electrode plate regions extends along said first electrode plate longer side for a length of less than said first electrode plate longer side length.

20       17. The structure of claim 13 wherein said first electrode plate longer side has a first electrode plate longer side length, said at least one first electrode plate includes a first electrode plate region that forms at least part of an energy entry region of said first electrode, and said first electrode plate region extends along said first electrode plate longer side for a length of no more than two thirds said first electrode plate longer side length.

25       18. The structure of claim 13 wherein said at least one first electrode plate includes a first electrode plate region that forms at least part of an energy entry region of said first electrode, and said longer side has a longer side center and two longer side ends, and said first electrode plate region is closer to said longer side center than to either of said two longer side ends.  
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19. The structure of claim 1 wherein said structure forms a discrete component.

20. The structure of claim 1 wherein said structure forms part of an interposer or first level interconnect to an integrated circuit.

21. The structure of claim 1 wherein said structure forms part of an integrated circuit.
- 5       22. The structure of claim 1 wherein a ratio of said maximal energy perpendicular line segment length to said energy pathway line segment length is greater than 1.2.
- 10      23. The structure of claim 1 wherein ratios of lengths of all energy perpendicular line segments to said energy pathway line segment length are all greater than 1.5.
- 15      24. The structure of claim 1 wherein a ratio of said energy perpendicular line segment length to said energy pathway line segment length is greater than 2.
- 20      25. The structure of claim 1 wherein a ratio of said energy perpendicular line segment length to said energy pathway line segment length is less than 100.
- 25      26. The structure of claim 1 wherein said first electrode plate major surface has a generally rectangular shape.
- 30      27. The structure of claim 1 wherein said first electrode plate major surface has a generally oval shape.
- 35      28. The structure of claim 1 wherein said first electrode plate major surface has a neck that protrudes from the rest of said first electrode plate in a direction parallel to said energy pathway line segment.
- 40      29. The structure of claim 28 further comprising a first edge interconnection structure and wherein said neck forms an edge protrusion connection to said first edge interconnection structure.
- 45      30. The structure of claim 1 wherein said first electrode comprises a plurality of first electrode plates and said plurality of first electrode plates are connected to one another by conductive material extending perpendicular to said first electrode plate major surface.
- 50      31. The structure of claim 1 wherein said shielding electrode comprises a plurality of shielding electrode plates and said plurality of shielding electrode plates are connected to

one another by conductive material extending perpendicular to said first electrode plate major surface.

32. The structure of claim 1 wherein said shielding electrode further comprises at  
5 least one end cap or terminal.

33. The structure of claim 32 wherein said at least two plates of said shielding  
electrode that sandwich between them all plates of said first electrode and said second  
electrode and said at least one end cap or terminal substantially enclose said first  
10 electrode and said second electrode.

34. The structure of claim 32 wherein said at least one end cap or terminal of said  
shielding electrode comprises at least a first shielding electrode end cap or terminal and a  
second shielding electrode end cap or terminal, and electrically conductive material  
15 extends exterior to said first electrode and said second electrode to connect said first  
shielding electrode end cap or terminal to said second shielding electrode end cap or  
terminal.

35. The structure of claim 1 further comprising an electrically conductive element  
20 exterior to said first electrode and said second electrode which is electrically connected to  
said shielding electrode and which has a surface area of at least the area defined by a plate  
of said shielding electrode.

36. A combination including the structure of claim 1 and a conductive surface  
25 adjacent said structure and functioning as a shield layer for said structure.

37. A combination including the structure of claim 1 and a first level interconnect,  
said first level interconnect having a conductive area, said conductive area functioning as  
a shielding plate of said shielding electrode.  
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38. A circuit comprising a structure of claim 1, in which said structure is configured  
to function as a voltage divider.

39. A structure comprising:  
35 a first electrode;

- a second electrode;  
a shielding electrode;  
wherein at least one plate of said shielding electrode separates each plate of said first electrode from any plate of said second electrode;
- 5 wherein at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode;  
wherein said first electrode includes a first electrode plate and edge interconnection structure; and  
wherein a length of said first electrode plate along a direction of an energy
- 10 pathway line segment of said first electrode plate is equal to or less than a length of said first electrode plate in a direction non-parallel to said energy pathway line segment and non-perpendicular to a plane defined by a major surface of said first electrode plate.
40. A structure comprising:  
15 a first electrode;  
a second electrode;  
a shielding electrode;  
wherein at least one plate of said shielding electrode separates each plate of said first electrode from any plate of said second electrode;
- 20 wherein at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode;  
wherein said first electrode includes a first electrode plate and a first electrode terminal;  
wherein said second electrode includes a second electrode plate and a second electrode terminal; and  
25 wherein a length of a first line segment extending from said first electrode terminal to said second electrode terminal in a plane defined by said first electrode plate is equal to or shorter than a length of a second line segment extending from said first electrode plate in a direction in said plane and non-parallel to said first line segment.
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41. A structure comprising:  
a first electrode;  
a second electrode;  
a shielding electrode;  
35 wherein at least one plate of said shielding electrode separates each plate of said

- first electrode from any plate of said second electrode;
- at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode; and
- a first edge electrode interconnection structure electrically connecting plates of said first electrode to one another;
- a second edge electrode interconnection structure electrically connecting plates of said second electrode to one another;
- wherein said first electrode includes a first electrode plate having a first electrode plate major surface and at least one first electrode plate energy entry region including a first contact region in contact with said first edge electrode interconnection structure;
- wherein said second electrode includes a second electrode plate having a second electrode plate major surface and at least one second electrode plate energy entry region including a second contact region in contact with said second edge electrode interconnection structure;
- an energy pathway line segment is defined by a line segment terminating in regions defined by a projection onto a plane parallel to a plane defined by said first electrode plate major surface of (1) said first contact region and (2) said second contact region;
- said energy pathway line segment having an energy pathway line segment length;
- a maximal energy perpendicular line segment corresponding to said energy pathway line segment, said maximal energy perpendicular line segment having a maximal energy perpendicular line segment length;
- wherein said maximal energy perpendicular line segment length is greater than said energy pathway line segment length.
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42. The structure of claim 41 providing an insertion loss at ten megahertz across said first electrode and said second electrode of at least 80 dB.
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43. The structure of claim 41 wherein length of each energy perpendicular line segment is greater than said energy pathway line segment length.
44. The structure of claim 41 wherein first electrode plate has only one first electrode plate energy entry region.
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45. A method of making a structure comprising:

- forming a first electrode;  
forming a second electrode;  
forming a shielding electrode;  
wherein at least one plate of said shielding electrode separates each plate of said  
5 first electrode from any plate of said second electrode;  
at least two plates of said shielding electrode sandwich between them all plates of  
said first electrode and said second electrode; and  
wherein said first electrode includes a first electrode plate having a first electrode  
plate major surface and at least one first electrode plate energy entry region, said second  
10 electrode includes a second electrode plate having at least one second electrode plate  
energy entry region;  
an energy pathway line segment is defined by a line segment terminating in  
regions defined by a projection onto a plane parallel to a plane defined by said first  
electrode plate major surface of (1) said at least one first electrode plate energy entry  
15 region and (2) said at least one second electrode plate energy entry region;  
said energy pathway line segment having an energy pathway line segment length;  
a maximal energy perpendicular line segment corresponding to said energy  
pathway line segment, said maximal energy perpendicular line segment having a maximal  
energy perpendicular line segment length;  
20 wherein said maximal energy perpendicular line segment length is greater than  
said energy pathway line segment length;  
wherein said forming steps include depositing, layer by layer, material for plates  
of said first electrode, said second electrode, and said shielding electrode to form a  
deposited structure.  
25
46. The method of claim 45 further comprises depositing between layers of said first  
electrode, said second electrode, and said shielding electrode, at least one of insulating  
material and precursor for insulating material.
- 30 47. The method of claim 45 further comprising the step of firing said structure.
48. The method of claim 45 wherein said depositing includes depositing material in a  
vacuum.
- 35 49. The method of claim 48 wherein said depositing includes depositing material

from a vapor.

50. The method of claim 45 further comprising depositing a resist, exposing a pattern in said resist, and removing resist corresponding to said pattern.

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51. The method of claim 50 further comprising at least one of depositing after removing said resist corresponding to said pattern and etching corresponding to said pattern.

10 52. The method of claim 45 further comprising folding said deposited structure to form a folded structure.

53. The method of claim 45 further comprising rolling said deposited structure to form a generally cylindrically shaped rolled structure.

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54. A method of using a structure, said structure comprising:

a first electrode;

a second electrode;

a shielding electrode;

20 wherein at least one plate of said shielding electrode separates each plate of said first electrode from any plate of said second electrode;

at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode; and

25 wherein said first electrode includes a first electrode plate having a first electrode plate major surface and at least one first electrode plate energy entry region, said second electrode includes a second electrode plate having at least one second electrode plate energy entry region;

30 an energy pathway line segment is defined by a line segment terminating in regions defined by a projection onto a plane parallel to a plane defined by said first electrode plate major surface of (1) said at least one first electrode plate energy entry region and (2) said at least one second electrode plate energy entry region;

said energy pathway line segment having an energy pathway line segment length;

35 a maximal energy perpendicular line segment corresponding to said energy

pathway line segment, said maximal energy perpendicular line segment having a maximal energy perpendicular line segment length;

wherein said maximal energy perpendicular line segment length is greater than said energy pathway line segment length;

5       said method comprising:

electrically connecting said first electrode and said second electrode across a source and a load;

applying power from said source to said load.

10      55.     The method of claim 54 further comprising:

connecting said shielding electrode to a relatively large metallic structure which is not electrically connected to either said first electrode or said second electrode.

15      56.     The method of claim 55 wherein said relatively large metallic structure is a chassis ground.

57.     The method of claim 55 wherein said relatively large metallic structure is an earth ground.

20      58.     A structure comprising:

a first electrode;

a second electrode;

a shielding electrode;

wherein at least one plate of said shielding electrode separates each plate of said first electrode from any plate of said second electrode;

wherein at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode; and

wherein said first electrode includes a generally rectangular plate having a longer side and two shorter sides, and an energy entry region of said first electrode is closer to a longer side of said generally rectangular plate than to either of said two shorter sides.

30      59.     A structure comprising:

a first electrode;

a second electrode;

35       a shielding electrode;

wherein at least one plate of said shielding electrode separates each plate of said first electrode from any plate of said second electrode;

wherein at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode; and

5        wherein said first electrode includes a generally rectangular plate, said generally rectangular plate having a longer side and a shorter side, and said longer side is longer than said shorter side, said longer side having a longer side first end, a longer side second end, and a longer side center; and

10      wherein an energy entry region of said first electrode is closer to said longer side center than to either one of said longer side first end and longer side second end.

60.     A structure comprising:

a first electrode;

a second electrode;

15      a shielding electrode;

wherein at least one plate of said shielding electrode separates each plate of said first electrode from any plate of said second electrode;

wherein at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode; and

20      wherein said first electrode includes a generally rectangular plate having a longer side and a shorter side, and said longer sides is longer than said shorter side; and

wherein an energy entry region of said first electrode extends along said longer side.

25     61.    A structure comprising:

a first electrode;

a second electrode;

a shielding electrode;

30      wherein at least one plate of said shielding electrode separates each plate of said first electrode from any plate of said second electrode;

wherein at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode; and

35      wherein said first electrode includes a plate having a longer side and a shorter side, said longer side is longer than said shorter side, and said longer side has a longer side length;

wherein there are a plurality of the energy entry regions for the first electrode, and the interval between at least two of said plurality of energy entry regions extends in a direction defined by the general extension of said longer side, and said interval extends for less than about 2/3 of said longer side length.

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62. A structure comprising:

- a first electrode;
- a second electrode;
- a shielding electrode;

10 wherein at least one plate of said shielding electrode separates each plate of said first electrode from any plate of said second electrode;

wherein at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode; and

wherein said first electrode includes a first electrode plate and edge

15 interconnection structure;

wherein a length of said first electrode plate along a direction of an energy pathway line segment of said first electrode plate is equal to or less than a length of said first electrode plate in a direction perpendicular to said energy pathway line segment and parallel to a plane defined by a major surface of said first electrode plate.

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63. A structure comprising:

- a first electrode;
- a second electrode;
- a shielding electrode;

25 wherein at least one plate of said shielding electrode separates each plate of said first electrode from any plate of said second electrode;

wherein at least two plates of said shielding electrode sandwich between them all plates of said first electrode and said second electrode; and

wherein said first electrode includes a first electrode plate and a first electrode

30 edge interconnection structure;

wherein said second electrode includes a second electrode plate and a second electrode edge interconnection structure;

wherein a length along a perpendicular line segment extending from said first electrode edge interconnection structure to said second electrode edge interconnection

35 structure in a plane defined by said first electrode plate is equal to or shorter than a length

of said first electrode plate in a direction in said plane and perpendicular to said perpendicular line segment.